

WHAT IS CLAIMED IS:

1. An image processing apparatus, comprising:
 - a first processing means for sequentially processing input pixel data;
 - a memory device provided at a preceding stage of said first processing means to store said pixel data;
 - 5 a second processing means for determining a characteristic of an image region including a plurality of said pixel data; and
 - a third processing means for processing the pixel data processed at said first processing means, based on the characteristic determined by said second processing means.
2. An image processing apparatus, comprising:
 - a first processing means for sequentially processing pixel data in response to input of the pixel data;
 - a second processing means for determining a characteristic of an
 - 5 image region including a plurality of said pixel data;
 - a third processing means for processing pixel data processed at said first processing means, based on the characteristic determined by said second processing means;
 - a connecting means for connecting a memory device; and
 - 10 a switch device for switching a circuit such that said connecting means is arranged either at a preceding stage of said first processing means or between said first processing means and said third processing means.
3. An image processing apparatus, comprising:
 - a first processing means for converting, in response to input of pixel data including a set of a plurality of color data, said plurality of color data into a plurality of image color data in a first state, and said plurality of
 - 5 color data into one image color data of said plurality of image color data in a second state;
 - a second processing means for determining a characteristic of an image region including a plurality of said pixel data;

10 a third processing means for processing, based on a characteristic amount determined by said second processing means, said plurality of image color data converted at said first processing means in said first state, and the one image color data converted at said first processing means in said second state;

15 a connecting means for connecting a memory device; and
a switch device for arranging a plurality of said connecting means, corresponding to said plurality of color data, at a preceding stage of said first processing means in said first state, and for arranging said connecting means, corresponding to said one image color data, between said first processing means and said second processing means in said second state.

4. An image processing apparatus, comprising:
a memory device to store input image data;
a first processing unit to sequentially convert and output the image data stored in said memory device;
5 a second processing unit to receive the same image data as image data input into said memory device and to output data processed based on the received image data; and
a third processing unit to receive the image data output from said first processing unit and the data output from said second processing unit,
10 and to process the image data output from said first processing unit based on the data output from said second processing unit.

5. The image processing apparatus according to claim 4, wherein same image data is input into said memory device and said second processing unit in parallel.

6. The image processing apparatus according to claim 4, wherein said second processing unit determines an attribute of an image region based on image data of a pixel to be processed and pixels on the periphery of said pixel to be processed, and outputs data indicating the
5 attribute.

7. The image processing apparatus according to claim 6, wherein said second processing unit determines if the image region is represented by a character.

8. The image processing apparatus according to claim 6, wherein said second processing unit determines if the image region is represented by a photograph.

9. The image processing apparatus according to claim 6, wherein said second processing unit determines if the image region is represented by a dot.

10. The image processing apparatus according to claim 4, wherein said first processing unit converts the input image data into image data of a different color system to output the converted image data.

11. The image processing apparatus according to claim 4, wherein said third processing unit processes the image data output from said first processing unit to correct sharpness of an image.

12. The image processing apparatus according to claim 4, wherein said third processing unit substantially simultaneously receives the image data from said first processing unit and data corresponding to said image data from said second processing unit.

13. An image processing apparatus, comprising:
a memory device to store image data;
a first processing unit to sequentially convert and output input image data;

5 a second processing unit to receive a plurality of said image data, and to output data processed based on the input image data;

a third processing unit to process image data output from said memory device and image data processed at said first processing unit,

based on the data output from said second processing unit;

10 a first circuit to input the image data output from said memory device into said first processing unit;

 a second circuit to input the image data output from said first processing unit into said memory device and also to input the image data output from said memory device into said second processing unit; and

15 a switch device to selectively switch said first circuit and said second circuit.

14. The image processing apparatus according to claim 13, wherein

 same image data is input into said memory device and said second processing unit in parallel, when said first circuit is selected by said
5 switching device.

15. The image processing apparatus according to claim 13, wherein

 same image data is input into said first processing unit and said second processing unit in parallel, when said second circuit is selected by
5 said switching device.

16. The image processing apparatus according to claim 13, wherein

 said second processing unit determines an attribute of an image region based on image data of a pixel to be processed and pixels on the
5 periphery of said pixel to be processed, and outputs data indicating the attribute.

17. The image processing apparatus according to claim 13, wherein

 said first processing unit converts the input image data into image data of a different color system to output the converted image data.

18. The image processing apparatus according to claim 13,
wherein
said third processing unit processes the image data output from said
first processing unit to correct sharpness of an image.

19. The image processing apparatus according to claim 13,
wherein
said third processing unit substantially simultaneously receives the
image data from said first processing unit and data corresponding to said
image data from said second processing unit.

20. An image processing apparatus, comprising:
a memory device to store image data;
a first processing unit to convert, in response to input of image data
including a set of a plurality of color data, said plurality of color data into a
plurality of image color data in a first state, and said plurality of color data
into one image color data of said plurality of image color data in a second
state;
a second processing unit to receive a plurality of said image data, and
to output data processed based on the input image data;
a third processing unit to process, based on data output from said
second processing unit, a plurality of image color data converted at said
first processing unit in said first state, and the one image color data
converted at said first processing unit in said second state;
a first circuit to input image data including a set of a plurality of
color data output from said memory device into said first processing unit;
a second circuit to input one image color data output from said first
processing unit into said memory device, and also inputting one image color
data output from said memory device into said second processing unit; and
a switch device to selectively switch said first circuit and said second
circuit to select said first circuit in said first state and to select said second
circuit in said second state.

21. The image processing apparatus according to claim 20,
wherein

same image data is input into said memory device and said second
processing unit in parallel, when said first circuit is selected by said
switching device.

22. The image processing apparatus according to claim 20,
wherein

same image data is input into said first processing unit and said
second processing unit in parallel, when said second circuit is selected by
said switch device.

23. The image processing apparatus according to claim 20,
wherein

said second processing unit determines an attribute of an image
region based on image data of a pixel to be processed and pixels on the
periphery of said pixel to be processed, and outputs data indicating the
attribute.

24. The image processing apparatus according to claim 20,
wherein

said first processing unit converts the input image data into image
data of a different color system to output the converted image data.

25. The image processing apparatus according to claim 20,
wherein

said third processing unit processes the image data output from said
first processing unit to correct sharpness of an image.

26. The image processing apparatus according to claim 20,
wherein

said third processing unit substantially simultaneously receives the
image data from said first processing unit and data corresponding to said

5 image data from said second processing unit.

27. An image forming apparatus, comprising:
a memory device to store input image data;
a first processing unit to sequentially convert and output the image
data stored in said memory device;

5 a second processing unit to receive same image data as the image
data input to said memory device, and to output data processed based on
the input image data;

10 a third processing unit to receive the image data output from said
first processing unit and the data output from said second processing unit,
and to process the image data output from said first processing unit based
on the data output from said second processing unit; and

an image forming unit to form an image on a sheet based on image
data output from said third processing unit.

28. An image forming apparatus, comprising:

a memory device to store image data;

a first processing unit to sequentially convert and output input image
data;

5 a second processing unit to receive a plurality of said image data, and
to output data processed based on the input image data;

a third processing unit to process image data output from said
memory device and image data processed at said first processing unit,
based on the data output from said second processing unit;

10 a first circuit to input image data output from said memory device
into said first processing unit;

a second circuit to input the image data output from said first
processing unit and also to input the image data output from said memory
device into said second processing unit;

15 a switch device to selectively switch said first circuit and said second
circuit; and

an image forming unit to form an image on a sheet based on the

image data output from said third processing unit.